

MITES FOUND ON MICE OF THE GENUS  
*PEROMYSCUS* IN UTAH. V. TROMBICULIDAE  
AND MISCELLANEOUS FAMILIES<sup>1</sup>

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This is the fifth and final paper of a series dealing with mites found on five species of deer mice over a five-year period in Utah. Subsequent to the completion and prior to the publication of this study, Brennan and Beck (1957) published on the chiggers of Utah. Because of the relative completeness of their report, this paper has been condensed considerably to avoid repetition of some of their data.

Many of the species of chiggers and mites of other miscellaneous families listed herein were found in so few numbers that only their host relationships, and in a few cases geographic distribution, are given. One species of Trombiculidae is described as new.

*Shunsennia ochotona* (Radford), 1942

Radford described *S. ochotona* from larvae taken from a pika from Montana. According to Brennan (correspondence) the mites of this study in Utah are strongly aberrant forms or perhaps represent an undescribed species. Jameson (correspondence) designated them as "probably *S. ochotona*." Mites collected from *Peromyscus maniculatus* and *Clethrionomys californicus* in California are similar in many respects to these mites from Utah. Comparisons with a redescription of *S. ochotona* by Radford (1946) revealed differences between some structures, such as the five-pronged tibial claw of the Utah mites (fig. 1). The posterior border of the scutum is rounded, not angular, and the scutal setae and sensillae are shorter than Radford's measurements (fig. 2). Nine of sixteen specimens examined in this study have three setae on both coxae II (fig. 3), one has two setae on both coxae II, and six have three setae on one side and two setae on the other. Two mites have three setae on both coxae III (fig. 3), three have four setae on both coxae III, nine have three setae on one side and four setae on the other, one has three setae on one side and five on the other, and one has four setae on one side and five on the other. The setae between coxae II and III are few in number, usually six in a 2:4 or 2:2:2 arrangement. Thirteen mites have six setae arranged in a 2:4 sequence, one has six setae in a 2:2:2 sequence (fig. 3), one has five setae in a 2:3 sequence, and one has seven setae in an irregular 1:6 sequence. The genualae II, tibialae III and spurs are missing in some specimens but are present on one side only in others. Jameson (correspondence) remarked that chiggers belonging to *S. ochotona* are highly variable. Further collections and studies may necessitate a redescription of this species in order to include the extreme variations.

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The sixteen larvae were collected from four female mice fifteen miles west of Fillmore, Millard County, at an elevation of 4900 feet in the Upper Sonoran Life-zone. The numbers of mites found on each of the host animals were seven, two, one and six, respectively. The hosts of these mites were collected during July in a flat, lava-rock, cinder cone area where sagebrush and lava flows were abundant. Mites of the species *Eubrachylaelaps debilis* were the only associates of *S. ochotona*.

*Trombicula (Neotrombicula) californica* Ewing, 1942

Ewing named this species from mites collected from pocket gophers, meadow mice and woodrats from California. Brennan and Wharton (1950) stated that this species is extremely variable in all localities where it is known to occur. Some of the following characters in specimens from Utah show some variance when compared with others of this species. In four mites the mastifemoralae are without minute basal barbs, and the femural setae of the palps are nude. The galeal setae are nude on two specimens and branched on another. One mite has a nude galeal seta on one side and a one-branched seta on the other. The dorsal setal formula varies on four mites as follows: 2-11-14-15-9-6-2, 2-9-13-13-10-6-2, 2-15-14-16-10-6-2, 2-11-17-17-9-6-2. The Standard Data (scutal measurements) for the four specimens are as follows:

AW	PW	SB	ASB	PSB	AP	AM	AL	PL	S
84	111	34	41	34	34	48	51	58	65
84	106	31	38	33	34	55	51	62	69
84	106	33	38	31	31	51	55	55	82
89	113	34	43	34	34	55	51	58	—

Ewing (1942) and Brennan and Wharton (1950) reported this species from lagomorphs and rodents including *Peromyscus maniculatus*. This species has been collected in California, Montana, and Idaho. In this study, the four larvae were taken from a mouse at Lake Blanche, Salt Lake County, at an elevation of 9000 feet in the Canadian Life-zone.

*Trombicula (Neotrombicula) harperi* Ewing, 1928

This species was described from mites collected from *Napeozapus insignis* from New York. A total of 93 larvae was collected from six male and five female *P. maniculatus* during August. The areas of collection were in the Canadian Life-zone east of Mt. Pleasant at elevations between 7500 and 10,000 feet. Infested mice had an average of 8.4 mites per mouse, and male and female mice were about equally infested. One female mouse was infested with 22 chiggers of this species, while another female mouse had only two mites. It is of interest to note that these mites were not found on any other of the hundreds of *P. maniculatus* collected in similar areas over the state.

Five of the eleven times that it was collected, *T. harperi* was the only species found on its hosts. At other times it was associated with

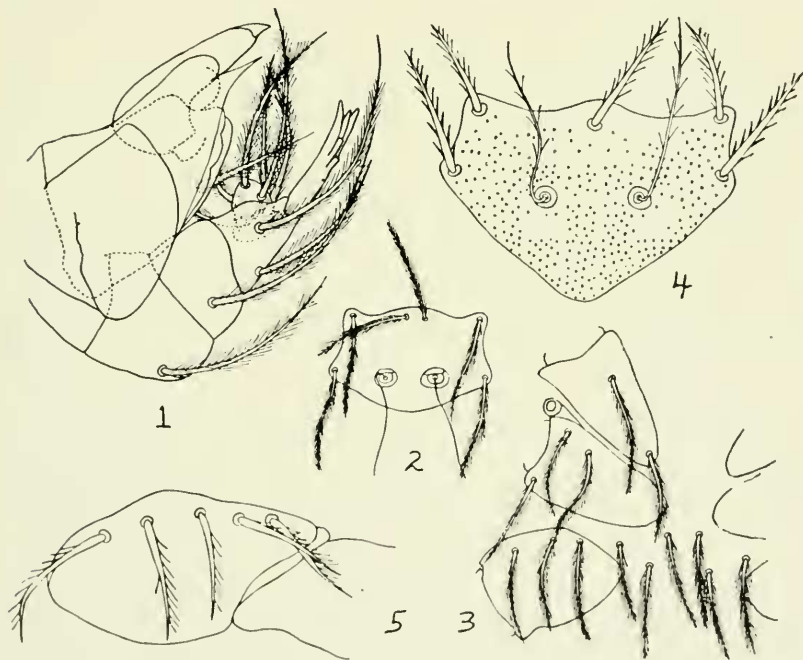
the following species the numbers of times indicated: *Haemolaelaps glasgowi*, 4; *Euhaemogamasus ambulans*, 2; *Eulaelaps* sp., 2; *Parasitidae* sp., 1; *Ascaidae* sp., 1.

*Trombicula (Trombicula) reesi*, n. sp.

*Body*.—The length and width of the idiosoma of five engorged paratypes vary from 470 to 558 microns by 294 to 470 microns. The engorged holotype is 573 by 426 microns.

*Gnathosoma*.—The cheliceral bases are punctate, and the cheliceral blades have tricuspid caps. All the palpal setae are branched. The palpal claw is trifurcate, composed of a large axial prong and two smaller accessory prongs. The galeal setae are plumose with about four or five barbs. On one paratype, one of the galeal setae is two-branched and the other is four-branched.

*Scutum*.—The scutum is pentangulate (fig. 4). It has punctae which are about equally distributed over the entire surface of the plate except along the anterior edge and immediately posterior to the sensillary bases. The sensillae are barbed along their entire length, but the basal barbs are shortest. The sensillary bases are situ-



(LIST OF FIGURES)

*Shunsennia ochotona*: fig. 1, dorsal view of right half of gnathosoma of larva; fig. 2, scutum of larva; fig. 3, right coxae and ventral setae of larva.

*Trombicula reesi*: fig. 4, scutum of larva; fig. 5, left coxa III of larva.

ated slightly posterior to the posterolateral setae. The scutal setae are moderately barbed. The scutal measurements of the holotype are: AW-68, PW-77, SB-27, ASB-29, PSB-30, AP-17, AM-37, AL-31, PL-41, S-58. The same measurements for one paratype are: AW-68, PW-80, SB-29, ASB-29, PSB-29, AP-17, AM-37, AL-34, PL-41, S-58.

*Legs.*—Leg I: coxa, trochanter and basifemur each with a plumose seta; telofemur with five plumose setae; genu with four plumose setae, three genualae and a microgenuala; tibia with eight plumose setae, two tibialae and a microtibiala; tarsus with about eighteen plumose setae, a spur, a microspur, a parasubterminala, a subterminala and a pretarsala. Leg II: coxa and trochanter each with a plumose seta; basifemur with two plumose setae; telofemur with four plumose setae; genu with three plumose setae and a genuala; tibia with six plumose setae and two tibialae; tarsus with about fourteen plumose setae, a spur, a microspur and a pretarsala. Leg III: each coxa of the holotype with five plumose setae (fig. 5). On four paratypes examined, the setae of the left and right coxae, respectively, are four and five, six and three, five and five, and six and five. The trochanter has a plumose seta, the basifemur two plumose setae, the telofemur three plumose setae, the genu three plumose setae and a genuala, the tibia six plumose seta and a tibiala, and the tarsus about twelve plumose setae and a mastitarsala.

*Idiosomal Setae.*—The dorsal setae, which number about 105, are irregularly placed and not in discernable rows. The ventral setae number about 100.

*Type Data.*—The larval holotype and nine larval paratypes were collected from a mouse of the species *Peromyscus maniculatus* at Lake Blanche, Salt Lake County, Utah by Larry Chatwin during the autumn of 1952. This area is at an elevation of about 9000 feet in the Canadian Life-zone. The holotype and several paratypes are in the collection of the author. Other paratypes are deposited at the University of Utah, Rocky Mountain Laboratory, and United States National Museum.

*Discussion.*—*Trombicula reesi* is related to *T. cynos*, *T. scottae*, *T. sargenti* and *T. jonesae*. It can be readily distinguished from these related species on the basis of the greater number of body setae and the number of setae on coxae III. *T. reesi* is named after Dr. Don M. Rees, Chairman of the Division of Biology, University of Utah.

*Euschöngastia criceticola* Brennan, 1948

This species was described from three larvae taken from *Peromyscus maniculatus* from Montana during 1946. It is generally statewide in its distribution in Utah, and has been collected at elevations between 2250 and 7000 feet in all of the life zones from the Lower Sonoran to the Canadian, most frequently in the Upper Sonoran.

These mites were collected every month of the year except July, September, October and November. The greatest numbers were taken during January and August.

Eleven of the 21 times it was collected, this species was the only mite found infesting its host. At other times it was associated with the following species the numbers of times indicated: *Eubrachylaelaps debilis*, 2; *E. circularis*, 1; *Hirstionyssus* spp., 7; *Haemolaelaps glasgovi*, 5; *Euschongastia* sp., 1; Laelaptidae sp., 1.

*Euschongastia sciuricola* (Ewing), 1925

Ewing described this species from several chiggers taken from squirrels of the species *Sciurus hudsonicus* from Montana. In this study, seven larvae were collected in July from three *Peromyscus maniculatus* at Mercur, Tooele County, and at Steep Creek, 12 miles north of Boulder, Garfield County, at elevations of approximately 6700 and 9000 feet in the Upper Sonoran and Transition life zones.

Collection records indicate that these mites usually are associated with squirrels. Since these collections were made in areas where squirrels of the genus *Citellus* were common, it is likely that these were accidental infestations.

MITE-HOST RELATIONSHIPS

Following is a check-list and host correlation of all mites taken from specimens of *Peromyscus* during this study. In the family and generic names are included some undescribed species and immature forms which cannot be identified past the family or generic level at the present time. Collection localities have been included only for those genera and species which have not been discussed in previous papers.

Mite Species	Total Mites From Each Species of <i>Peromyscus</i>				
	<i>boylii</i>	<i>crinitus</i>	<i>eremicus</i>	<i>maniculatus</i>	<i>truei</i>
<i>Allodermanyssus</i> sp. Toquerville, Washington County				2	
Antennoporidae sp.				1	
Ascaidae sp.				4	
<i>Brevisterna utahensis</i>		4		2	1
<i>Bryobia praetiosa</i> Heugh's Canyon, Salt Lake County	1				
Camisiidae sp.				1	
Cheyletidae sp.				2	
<i>Dermanyssus becki</i>	1	12		43	4
Dermanyssidae spp.		2		3	20
Eremaeidae sp.				2	4
<i>Eubrachylaelaps circularis</i>	145	35		65	79
<i>Eubrachylaelaps debilis</i>		2		2	623
<i>Eubrachylaelaps hollisteri</i>		57		70	17
<i>Euhaemogamasus ambulans</i>					18
<i>Euhaemogamasus barberi</i>					1
<i>Euhaemogamasus oudemansi</i>			1		5
<i>Euhaemogamasus</i> sp. Provo Canyon, Utah County					1
<i>Eulaelaps</i> spp. Salt Lake, Utah, Sanpete and Iron Counties					10

Mite Species	Total Mites From Each Species of <i>Peromyscus</i>				
	<i>boyllii</i>	<i>crinitus</i>	<i>eremicus</i>	<i>maniculatus</i>	<i>truei</i>
<i>Euschöngastia criceticola</i> Statewide distribution	8		12	157	
<i>Euschöngastia sciuricola</i> Mercur, Tooele County; Steep Creek, Garfield County				7	
<i>Euschöngastia</i> sp. Washington, Boxelder, Salt Lake, Utah and Wayne Counties			4	12	
Gamasolaelaptidae sp.				5	
<i>Garmania</i> spp. Utah, Garfield, and San Juan Counties				9	
<i>Glycyphagus</i> sp. Heugh's Canyon, Salt Lake County				1	
<i>Haemogamasus alaskensis</i>				1	
<i>Haemogamasus</i> sp. Parleys Canyon, Salt Lake County				1	
<i>Haemolaelaps glasgowi</i>	48	1	36	1158	10
<i>Haemolaelaps megaventralis</i>				11	14
<i>Hermannia</i> sp. Heugh's Canyon, Salt Lake County	1				
<i>Hirstionyssus femoralis</i>			1		
<i>Hirstionyssus geomydis</i>				2	
<i>Hirstionyssus hilli</i>			7	2	
<i>Hirstionyssus incomptus</i>		2		5	
<i>Hirstionyssus isabellinus</i>				1	
<i>Hirstionyssus obsoletus</i>				1	
<i>Hirstionyssus occidentalis</i>		6	1	409	
<i>Hirstionyssus</i> sp. Wasatch, Garfield, Washington and San Juan Counties				6	
<i>Hypoaspis gurabensis</i>				4	
<i>Hypoaspis leviculus</i>				2	
<i>Hypoaspis</i> spp. Millard, Salt Lake, Summit and Utah Counties		2		5	
<i>Ischyropoda armatus</i>				27	2
<i>Laelaps multispinosus</i>				1	
<i>Laelaps nuttalli</i>				1	
Laelaptidae spp.	2		6	12	
<i>Listrophorus</i> sp. Salt Lake and Garfield Counties				11	
Neoparasitidae sp.				1	
<i>Ornithonyssus bacoti</i>	1	1	2	61	11
<i>Ornithonyssus</i> sp. Upper Sonoran Life Zone areas	2	4	7	41	8
Pachylaelaptidae sp.				2	
Parasitidae sp.		1		30	
Phytoseiidae spp.				5	
<i>Pocillochirus</i> sp. Duchesne Ridge, Summit County				1	
Pymotidae sp.				1	

Total Mites From Each Species of *Peromyscus*  
*boyllii* *crinitus* *eremicus* *maniculatus* *truei*

Mite Species	<i>boyllii</i>	<i>crinitus</i>	<i>eremicus</i>	<i>maniculatus</i>	<i>truei</i>
<i>Radfordia lemnina</i> Steep Creek, Garfield County				1	
<i>Radfordia subuliger</i> Chimney Rock Pass and Lehi, Utah County				2	
<i>Rhizoglyphus echinopus</i> Lehi, Utah County				1	
<i>Shunsemmia ochotona</i> Fillmore, Millard County				16	
Tetranychidae sp.				1	
<i>Trombicula belkini</i> Fish Springs, Juab County					1
<i>Trombicula californica</i> Lake Blanche, Salt Lake County				4	
<i>Trombicula harperi</i> Mt. Pleasant, Sanpete County				93	
<i>Trombicula jewetti</i> Roosevelt, Duchesne County				1	
<i>Trombicula microti</i> Parowan, Iron County				1	
<i>Trombicula montanensis</i> Rich, Sanpete and Kane Counties				21	1
<i>Trombicula myotis</i> Bridgeport, Daggett County				1	
<i>Trombicula reesi</i> Lake Blanche, Salt Lake County				10	
<i>Trombicula</i> sp. Weber, Salt Lake and Beaver Counties				7	
Trombiculidae spp.	4	7		13	
<i>Typhlodromus mariposus</i>				17	
Uropodidae sp.				6	

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